THE ASTROPHYSICAL JOURNAL CONTENTS OF VOLUME 408, PART 1

1993 MAY 1, Number 1

ANNOUNCEMENT: ADDITIONAL ASSOCIATE EDITORS Helmut A. Abt	Page	Fiche 83-B1
CLUSTERS AND GROUPS OF GALAXIES AS COSMOLOGICAL PROBES Haruhiko Ueda, Makoto Itoh, & Yasushi Suto	3	83-B5
SIGNIFICANT CLUSTER CORRELATIONS AT 30 h^{-1} Mpc: CAN STANDARD MODELS BE RULED OUT? Scot S. Olivier, Joel R. Primack, George R. Blumenthal, & Avishai Dekel	17	83-C7
ANISOTROPY OF COSMIC BACKGROUND RADIATION FROM A SPHERICAL CLUSTERING ON LARGE SCALES Li-Zhi Fang & Xiang-Ping Wu	25	83-D3
KURTOSIS, SKEWNESS, AND NON-GAUSSIAN COSMOLOGICAL DENSITY PERTURBATIONS Xiaochun Luo & David N. Schramm	33	83-E1
HIGHER ORDER STATISTICS OF THE GALAXY DISTRIBUTION USING GENERATING FUNCTIONS István Szapudi & Alexander S. Szalay	43	83-E13
COMPRESSIVE TIDAL HEATING OF A DISK GALAXY IN A RICH CLUSTER Monica Valluri	57	83-G1
X-RAY SPECTRA OF 12 DISTANT CLUSTERS OF GALAXIES Qingde Wang & John T. Stocke	71	84-A4
VLBI OBSERVATIONS OF A COMPLETE SAMPLE OF RADIO GALAXIES. II. THE PARSEC-SCALE STRUCTURE OF NGC 315 T. Venturi, G. Giovannini, L. Feretti, G. Comoretto, & A. E. Wehrle	81	84-B4
THE HOT STELLAR COMPONENT IN ELLIPTICAL GALAXIES AND SPIRAL BULGES. I. THE FAR-ULTRAVIOLET SPECTRUM OF THE BULGE OF M31 Henry C. Ferguson & Arthur F. Davidsen	92	84-C4
THE AGE OF THE LARGE MAGELLANIC CLOUD CLUSTER NGC 2031 J. R. Mould, D. A. Xystus, & G. S. Da Costa	108	84-D8
CENTRIFUGALLY DRIVEN WINDS FROM PROTOSTELLAR DISKS. I. WIND MODEL AND THERMAL STRUCTURE $Pedro\ N.\ Safier$	115	84-E6
CENTRIFUGALLY DRIVEN WINDS FROM PROTOSTELLAR DISKS. II. FORBIDDEN-LINE EMISSION IN T TAURI STARS Pedro N. Safier	148	85-A1
MAGNETIC FIELD TOPOLOGY IN PULSARS Jonathan Arons	160	85-B1
MAGNETIC FIELD DECAY FROM THE CORE OF NEUTRON STARS: EFFECTS OF INTERPINNING OF 3P_2 NEUTRON SUPERFLUID AND 1S_0 PROTON SUPERCONDUCTING FLUID K. Y. Ding, K. S. Cheng, & H. F. Chau	167	85-B11
ORIGIN AND RADIO PULSE PROPERTIES OF MILLISECOND PULSARS Kaiyou Chen & Malvin Ruderman	179	85-C12
THERMAL EVOLUTION OF NEUTRON STARS WITH INTERNAL FRICTIONAL HEATING Hideyuki Umeda, Noriaki Shibazaki, Ken'ichi Nomoto, & Sachiko Tsuruta	186	85-D7
NEUTRON STAR DYNAMOS AND THE ORIGINS OF PULSAR MAGNETISM Christopher Thompson & Robert C. Duncan	194	85-E4

CONTENTS

	Page	Fiche
THE SPECTRAL ENERGY DISTRIBUTION OF STAR-FORMING REGIONS Ralf Siebenmorgen	218	85-G3
η CARINAE: A NEW MODEL J. M. Borgwald & M. W. Friedlander	230	86-A3
CIRCUMSTELLAR MOLECULAR GAS OF THE HH 34 AND HH 111 EXCITING STARS Karl R. Stapelfeldt & Nicholas Z. Scoville	239	86-B1
LIGHT-INDUCED DRIFT AND ABUNDANCE ANOMALIES F. LeBlanc & G. Michaud	251	86-C1
THE ⁶ Li/ ⁷ Li RATIO IN THE METAL-POOR HALO DWARFS HD 19445 AND HD 84937 Verne V. Smith, David L. Lambert, & Poul E. Nissen	262	86-D1
HIGH-RESOLUTION MID-INFRARED SPECTRA OF Co II, Ni I, AND Fe II IN SN 1987A D. E. Jennings, R. J. Boyle, G. R. Wiedemann, & S. H. Moseley	277	86-E5
UPPER LIMITS FOR GRAVITATIONAL RADIATION FROM SUPERMASSIVE COALESCING BINARIES J. D. Anderson, J. W. Armstrong, & E. L. Lau	287	86-F4
GLOBALLY STABLE EQUILIBRIA OF COLLISIONLESS SELF-GRAVITATING MATTER WITH NONVANISHING TOTAL ANGULAR MOMENTUM Heinz Wiechen & Harald J. Ziegler	293	86-F13
A CATALOG OF STELLAR LYMAN-ALPHA FLUXES Wayne Landsman & Theodore Simon	305	87-A1
DYNAMIC PROCESSES IN Be STAR ATMOSPHERES. I. "DIMPLE" FORMATION IN THE He 1 λ6678 LINE OF λ ERIDANI Myron A. Smith & Ronald S. Polidan	323	87-B8
ENCOUNTERS WITH PROTOSTELLAR DISKS. I. DISK TILT AND THE NONZERO SOLAR OBLIQUITY Clayton H. Heller	337	87-C11
TOWARD A UNIFIED CLASSICAL MODEL OF THE SUN: ON THE SENSITIVITY OF NEUTRINOS AND HELIOSEISMOLOGY TO THE MICROSCOPIC PHYSICS Sylvaine Turck-Chièze & Ilidio Lopes	347	87-D10
SOLAR CORONAL STRUCTURE NEAR THE TIME OF THE 1991 JULY 11 TOTAL SOLAR ECLIPSE D. G. Sime & J. Streete	368	87-F6
ELEMENTAL ABUNDANCES OF FLARING SOLAR PLASMA: ENHANCED NEON AND SULFUR J. T. Schmelz	373	87-G5
RADIATIVE LIFETIMES, BRANCHING RATIOS, AND ABSOLUTE TRANSITION PROBABILITIES IN Cr π AND Zn π S. D. Bergeson & J. E. Lawler	382	88-A3
INSTRUCTIONS TO AUTHORS	i	88-B1

1993 MAY 10, Number 2

THE COSMIC MACH NUMBER: DIRECT COMPARISONS OF OBSERVATIONS AND MODELS Michael A. Strauss, Renyue Cen, & Jeremiah P. Ostriker	389	90-B
BEYOND THE ZEL'DOVICH APPROXIMATION M. Lachièze-Rey	403	90-C
THE DISTANCE TO NEARBY GALAXY NGC 3109 BASED ON THE TIP OF THE RED GIANT BRANCH Myung Gyoon Lee	409	90-C
STEPS TOWARD DETERMINATION OF THE SIZE AND STRUCTURE OF THE BROAD-LINE REGION IN ACTIVE GALACTIC NUCLEI. IV. INTENSITY VARIATIONS OF THE OPTICAL EMISSION LINES OF NGC 5548 M. Dietrich, W. Kollatschny, B. M. Peterson, J. Bechtold, R. Bertram, N. G. Bochkarev, T. A. Boroson, T. E. Carone, M. Elvis, A. V. Filippenko, C. M. Gaskell, J. P. Huchra, J. B. Hutchings, A. P. Koratkar, K. T. Korista, N. J. Lame, A. Laor, G. M. MacAlpine, M. A. Malkan, C. Mendes de Oliveira, H. Netzer, J. Penfold, M. V. Penston, E. Pérez, R. W. Pogge, M. W. Richmond, E. I. Rosenblatt, A. I. Shapovalova, J. C. Shields, H. A. Smith, P. S. Smith, WH. Sun, U. Thiele, S. Veilleux, R. M. Wagner, B. J. Wilkes, B. J. Wills, & D. Wills	416	90-D

CONTENTS

	Page	Fiche
FLOW DYNAMICS AND BENDING OF WIDE-ANGLE TAILED RADIO SOURCES Aileen A. O'Donoghue, Jean A. Eilek, & Frazer N. Owen	428	90-E1
VLBI OBSERVATIONS OF A COMPLETE SAMPLE OF RADIO GALAXIES. III. THE TWO-SIDED MILLIARCSECOND STRUCTURE OF 3C 338 L. Feretti, G. Comoretto, G. Giovannini, T. Venturi, & A. E. Wehrle	446	90-F7
A SPECTRAL STUDY OF FOUR X-RAY-SELECTED BL LACERTAE OBJECTS WITH EXOSAT R. M. Sambruna, P. Barr, L. Maraschi, G. Tagliaferri, & A. Treves	452	90-G1
At/S Christopher C. Stevenson, Marshall L. McCall, & Douglas L. Welch	460	90-G11
TeV GAMMA RAYS FROM MILLISECOND PULSARS AND THE DETECTABILITY OF GLOBULAR CLUSTERS $\it I.A.$ Smith	468	91-A7
INFRARED IMAGES OF THE YOUNG CLUSTER NGC 2264 Charles J. Lada, Erick T. Young, & Thomas P. Greene	471	91-A11
FAR-ULTRAVIOLET STELLAR PHOTOMETRY: A FIELD IN MONOCEROS Edward G. Schmidt & George R. Carruthers	484	91-C1
MASSIVE STAR FORMATION NEAR THE GALACTIC CENTER AND THE FATE $\bar{\text{OF}}$ THE STELLAR REMNANTS Mark Morris	496	91-D1
AN OBSERVATION OF THE GALACTIC CENTER HARD X-RAY SOURCE, 1E 1740.7—2942, WITH THE CALTECH CODED-APERTURE TELESCOPE William A. Heindl, Walter R. Cook, John M. Grunsfeld, David M. Palmer, Thomas A. Prince, Stephen M. Schindler, & Edward C. Stone	507	91-E7
SPATIAL SPECTRAL INDEX VARIATIONS IN GALACTIC SHELL SUPERNOVA REMNANTS G39.2 – 0.3 AND G41.1 – 0.3 Martha C. Anderson & Lawrence Rudnick	514	91-E9
THEORETICAL INFRARED SPECTRA OF SOME MODEL POLYCYCLIC AROMATIC HYDROCARBONS: EFFECT OF IONIZATION D. J. De Frees, M. D. Miller, D. Talbi, F. Pauzat, & Y. Ellinger	530	91-G5
12 C/ 13 C ISOTOPE RATIO IN THE LOCAL INTERSTELLAR MEDIUM FROM OBSERVATIONS OF 13 C18O IN MOLECULAR CLOUDS William D. Langer & Arno A. Penzias	539	92-A1
CHEMICAL DIFFERENTIATION BETWEEN STAR-FORMING REGIONS: THE ORION HOT CORE AND COMPACT RIDGE P. Caselli, T. I. Hasegawa, & Eric Herbst	548	92-A11
CH AS A TRACER OF A TRANSLUCENT CLOUD BOUNDARY Loris Magnani & Joseph S. Onello	559	92-B9
A FLATTENED CLOUD CORE IN NGC 2024 Paul T. P. Ho, Yun-Lou Peng, José M. Torrelles, José F. Gómez, Luis F. Rodríguez, & Jorge Cantó	565	92-C1
INTERSTELLAR EXTINCTION IN THE INFRARED: THE MOLECULAR CLOUD TOWARD HD 62542 D. C. B. Whittet, P. G. Martin, E. L. Fitzpatrick, & D. Massa	573	92-C11
THE MORPHOLOGY AND INTERACTION WITH THE INTERSTELLAR MEDIUM OF THE PLANETARY NEBULA IC 4593 Daniel B. Zucker & Noam Soker	579	92-D5
PHOTOMETRY AND IMAGING OF THE PECULIAR PLANETARY NEBULA IRAS 21282+5050 Sun Kwok, Bruce J. Hrivnak, & Philip P. Langill	586	92-E3
LSIV -12°111: A CANDIDATE HALO PROTO-PLANETARY NEBULA E. S. Conlon, P. L. Dufton, R. J. H. McCausland, & F. P. Keenan	593	92-E11
UNSTABLE DEGENERATES REVISITED John Faulkner	600	92-F5
LOCAL HYDRODYNAMIC INSTABILITY OF ROTATING STARS Alexander Lifschitz & Norman Lebovitz	603	92-F9
HELIUM DESTRUCTION AND GAMMA-RAY LINE EMISSION IN ACCRETING NEUTRON STARS Lars Bildsten, Edwin E. Salpeter, & Ira Wasserman	615	92-G9
DEEP VLA IMAGING OF PULSAR-POWERED NEBULAE AND THE BEAMING FRACTION OF YOUNG PULSARS	637	93-B5

CONTENTS

	Page	Fiche
DYNAMICS OF THE ENVELOPES OF Be STARS AND SHELL STARS IN THE EQUATORIAL PLANE: A POTENTIAL SIMILARITY AND DIFFERENCE BASED UPON THE CONTINUOUS ENERGY DISTRIBUTION $J.$ $M.$ $Marlborough$, $Haiqi$ $Chen$, & $L.$ $B.$ $F.$ $M.$ $Waters$	646	93-C1
OPTICAL AND X-RAY OBSERVATIONS OF THE LOW-MASS X-RAY BINARY EXO 0748 – 676 Brian Thomas, Robin Corbet, Thomas Augusteijn, Paul Callanan, & Alan P. Smale	651	93-C7
THE DISCOVERY OF PULSED IRON LINE EMISSION FROM CENTAURUS X-3 C. S. R. Day, F. Nagase, K. Asai, & T. Takeshima	656	93-D1
CIRCULARLY POLARIZED RADIO EMISSION FROM THE T TAURI STAR HUBBLE 4 Stephen L. Skinner	660	93-D6
THE OH DISTRIBUTION IN COMETARY ATMOSPHERES: A COLLISIONAL MONTE CARLO MODEL FOR HEAVY SPECIES Michael R. Combi, Brent J. Bos, & William H. Smyth	668	93-E1
ON THE THERMAL STABILITY OF A RADIATING PLASMA SUBJECT TO NONLOCAL THERMAL CONDUCTION. I. LINEAR ANALYSIS E. Chun & R. Rosner	678	93-F1
THREE-DIMENSIONAL STRUCTURES OF MAGNETOSTATIC ATMOSPHERES. V. COUPLED ELECTRIC CURRENT SYSTEMS B C. Low	689	93-G1
THREE-DIMENSIONAL STRUCTURES OF MAGNETOSTATIC ATMOSPHERES. VI. EXAMPLES OF COUPLED ELECTRIC CURRENT SYSTEMS B C . Low	693	93-G7
A SOLAR DYNAMO SURFACE WAVE AT THE INTERFACE BETWEEN CONVECTION AND NONUNIFORM ROTATION E. N. Parker	707	94-A9
DYNAMICS OF LANGMUIR AND ION-SOUND WAVES IN TYPE III SOLAR RADIO SOURCES P. A. Robinson, A. J. Willes, & I. H. Cairns	720	94-B9
OBSERVED REDSHIFTS IN O $\rm v$ AND DOWNFLOWS IN THE SOLAR TRANSITION REGION P. Brekke	735	94-C1
THE OPTICALLY THIN C $_{ m III}$ SPECTRUM: LINE AND MULTIPLET INTENSITIES A. K. Bhatia & S. O. Kastner	744	94-D7
EFFECTIVE COLLISION STRENGTHS FOR O II Brendan M. McLaughlin & Kenneth L. Bell	753	94-E3
ERRATUM		
IMAGING SPECTROPHOTOMETRY OF THE ORION NEBULA CORE. I. EMISSION-LINE MAPPING AND PHYSICAL CONDITIONS	758	94-E9

